

THE SOUTH AFRICAN SUBSPECIES OF THE BUFFY PIPIT,  
*ANTHUS VAALENSIS* SHELLEY

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(With 1 figure in the text)

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INTRODUCTION

The Buffy Pipit *Anthus vaalensis* was originally described from Newcastle, Natal, by Shelley in 1900. For some time it was regarded as a race of the Plain-backed Pipit *A. leucophrys* and is so treated by Sclater (1930). Roberts, however, pointed out that the two forms overlapped widely and must be regarded as distinct species; and the problem was discussed in greater detail by White (1948).

Three races of *vaalensis* have been described from within the limits of geographical South Africa, for Roberts separated off a bird from Griqualand West as *daviesi* in 1914 and others from the Chobe River as *chobiensis* in 1932. All three subspecies were accepted by Vincent (1952); and Benson and White (1957) and Smithers, Irwin and Paterson (1957) have recognized *chobiensis* as distinct. Vaurie, White, Mayr and Greenway (1960) and White (1961), however, synonymize *daviesi* with *vaalensis*, and *chobiensis*, together with *marungensis* Chapin and *muhingae* White, with *neumanni* Meinertzhagen, originally described (as *Anthus leucophrys angolensis* Neumann) from Ambaca, Angola. Hall (1959), in her discussion of the Angola forms of *A. leucophrys* and *A. vaalensis*, also considers it is impracticable to separate *marungensis* and *muhingae* from *neumanni*, but does not discuss *chobiensis*.

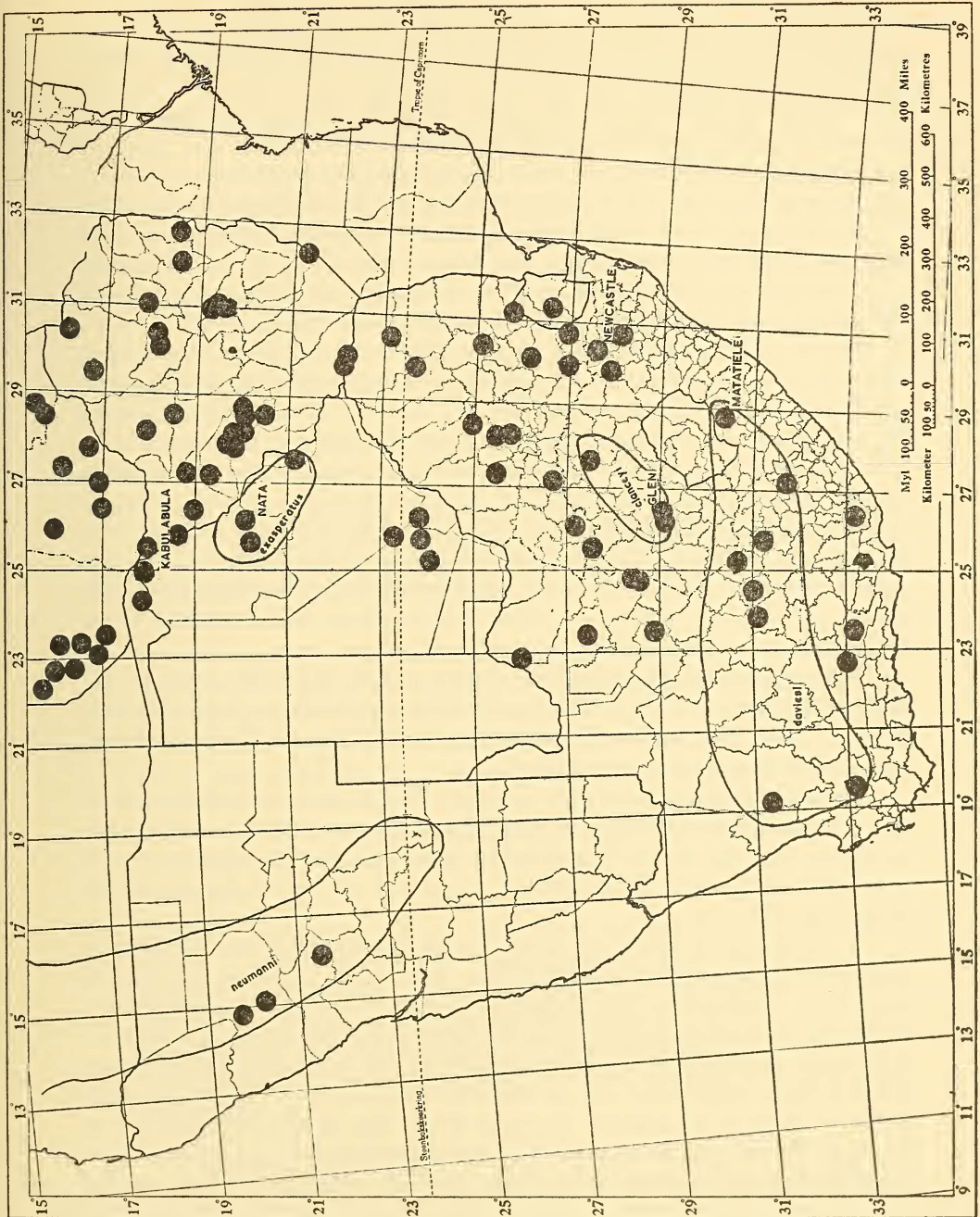
## DISCUSSION

For the present study I was able to utilize a series of 241 skins; and I am most grateful to the following for the loan of material: the Director, Mr. J. D. Macdonald and Mrs. B. P. Hall of the British Museum (Natural History); the Director (Mr. P. A. Clancey) of the Durban Museum and Art Gallery; the Director (Miss M. Courtenay-Latimer) of the East London Museum; the Director and Mr. O. P. M. Prozesky of the Transvaal Museum, Pretoria; the Director and Mr. M. P. S. Irwin of the National Museum of Southern Rhodesia, Bulawayo; and the Director (Dr. T. H. Barry) of the Albany Museum, Grahamstown.

Current literature (Vincent, 1952; Vaurie *et al.*, 1960) often includes the whole of South Africa within the range given for *Anthus vaalensis* and its subspecies; but this is misleading. The range is correctly given by McLachlan and Liversidge (1957). There appear to be no authentic records of the occurrence of this Pipit in the coastal strip of South Africa from Walvis Bay round to Portuguese East Africa (records from Black Rock, east of East London, and from the Bathurst District are due to confusion with *A. leucophrys*). On the Karoo, the records are sparse and scattered in the west and south, more frequent in the east. The sole record from the Transkei is the type of *daviesi*, from Matatiele; from Natal the species is known only from Newcastle, Utrecht and Blood River; and from the Orange Free State only from the neighbourhoods of Bloemfontein and Vrededorp Road. It becomes commoner in the Transvaal and is widely distributed in Southern and Northern Rhodesia (Smithers, Irwin and Paterson, 1957; Benson and White, 1957). In South West Africa (Hoesch and Niethammer, 1940; Macdonald, 1957) it has only been recorded from the north (Omaruru, Klein Otavi, Kaukurus, Franzfontein, Kamanjab). It is not mentioned by Smithers (1959) or Smithers and Paterson (1959) from Bechuanaland, but on the evidence of specimens is widely distributed there. In Nyasaland (Benson, 1953) it is recorded from a few localities west of the Shiré, but not from the east.

The three races described from south of the Zambezi were differentiated solely on size. Roberts (1940) considered *daviesi* to be the southern race and larger than *vaalensis* (w., ♂, 109–112 mm., as against 100–108 mm.), and that Ngamiland and Southern Rhodesian birds represented the smaller *chobiensis* (w., ♂, 98–99 mm.). Smithers, Irwin and Paterson (1957), however, conclude that most Southern Rhodesian birds cannot be differentiated from typical *vaalensis*, and this point is further discussed below. McLachlan and Liversidge (1957) restrict the range of *chobiensis* to Ngamiland.

The present series shows that the average wing-lengths of males of various populations vary with no very clear geographical divisions between 101.1 mm. and 105.3 mm., with two marked, and one less striking, exceptions. Birds from north-eastern Bechuanaland Protectorate average markedly smaller (95.0 mm.) and those from the near-by Caprivi Strip also run smaller (100.0 mm.)



RANGE OF *Anthus vaalensis* AND ITS SUBSPECIES IN SOUTHERN AFRICA

Each dot represents a locality from which at least one specimen has been examined. Type localities of named subspecies, whether valid or not, are named. The approximate ranges of four subspecies are indicated; the rest of the area is the range of *Anthus vaalensis vaalensis* and *A. v. chobisi* (N. of about 23°S.).

than the general population; and at the other extreme, birds from the Karoo average larger (112.0 mm.), though near the coast (Klaarstroom, Uniondale, Grahamstown, Zuurberg) they are smaller again (103.0 mm.). If we leave these aberrant populations out of account, then there are two minor population size-groups, that in Natal, the northern Cape, the Transvaal and southern Bechuanaland Protectorate comprising bigger birds (w., ♂, av. c. 104–105 mm.) and those in Southern and Northern Rhodesia and South West Africa smaller (c. 101–103 mm.). This broad grouping follows Bergmann's rule, but the rule does not apply within the groups (e.g. the average of 17 ♂s from Selukwe, 101.1 mm., is less than that of 17 ♂s from Northern Rhodesia, 102.3 mm.). Nevertheless, the broad difference is highly significant statistically.

In females, the average wing-lengths fall into three groups: Karoo (105 mm.); the rest of the Cape, Natal, southern Bechuanaland, Orange Free State and the Transvaal (99–101 mm.); and the rest (94–98 mm.), in which the smallest birds are in northern Bechuanaland. Here again, Bergmann's rule is broadly conformed to, but not within each group (e.g. of the middle group, the birds from the southern Cape are the smallest; Barotseland birds are bigger than any Southern Rhodesian population; and Angola birds are bigger than those from South West Africa). The two sexes agree in that Karoo birds are the biggest; that birds from south of the Limpopo are larger than those from the north; and that the smallest are those from northern Bechuanaland. These differences, too, are statistically significant.

Commenting on size-differences, White (1948) says: 'The birds of the high ground in the interior of the Cape Province seem to form a definable large race. . . . Those from northern Bechuanaland are smallest on the Chobe River, but not worth separating on size alone.'

We may note that males with wings of 108 mm. or more (108 mm. being the minimum given by White for male *daviesi*) occur sporadically as far north as Ngoma (15° 54' S.) in Northern Rhodesia; and that the shortest-winged population in northern Bechuanaland occurs not on the Chobe but in the Makarikari Pan area.

Turning now to colour, no recent worker has suggested any variation in populations in geographical South Africa. Hall (1959), discussing the Angola population, distinguishes two variants—a sandier form and a greyer form—the former predominating in the west, the latter in the east, so that, if considered in isolation, Angola birds might be classified in two subspecies; but she points out that 'some from as far east as Mzimba, Nyasaland, are indistinguishable from the co-types of *neumanni*' (a sandy bird). She therefore considers it is impracticable to recognize more than one subspecies; but she believes 'that *A. v. neumanni* can be distinguished from *A. v. vaalensis* by smaller size and less sandy colour'.

In the present series, two populations stood out from the others on colour grounds. One was from the neighbourhood of Bloemfontein, where the birds are distinctly greyer above than surrounding populations, as well as being

bigger than any except that to the south (*daviesi*), though the latter difference is not statistically significant. A small series from Vredefort Road, 150 miles farther north in the Orange Free State, probably belongs here too, but the skins are old, faded and mostly very badly prepared, so that it is difficult to be sure.

The second distinctive population is that from South West Africa, whence the birds are decidedly redder above and below than the general series. It should be noted, however, that a May bird from Darwendale, Southern Rhodesia, fits perfectly into this series, and a number of other skins from the Rhodesias approach the less extreme South West African examples fairly closely. I have not seen any Angola specimens but I have been unable to detect any general colour variation between series of birds from the Transvaal, Natal, southern Bechuanaland, northern Cape, Southern Rhodesia and Northern Rhodesia.

Summarizing the variation in this species, I consider that there are four well-marked but very localized variations:

- (i) A large-sized population in the higher ground of the Cape from Matatiele to the west coast escarpment. For this the name *daviesi* Roberts is available.
- (ii) A grey population in the Orange Free State. This is named, below, *clanceyi*.
- (iii) A small-sized population in north-east Bechuanaland. Unfortunately the name *chobiensis* (Roberts) cannot be used for this population. Roberts does not give the wing-measurement of the type of *chobiensis* separately; he only says 'males, 98–99 mm.'; but I have measured the type twice myself and asked Dr. G. J. Broekhuysen to measure it independently and all three measurements were just over 101 mm. Of the three Chobe birds available to me, two, including the type of *chobiensis*, are too big to be placed in this small race, which I have accordingly named, below, *exasperatus*.
- (iv) A reddish population in South West Africa. In view of the evidence cited above, I believe this to be indistinguishable from the birds named *neumanni* Meinertzhagen, and propose to use this name for them, which is the name used also by Hoesch and Niethammer (1940), though Macdonald (1957) calls his birds from this area *chobiensis*, and White (1948) synonymizes *neumanni* with *vaalensis* but keeps *chobiensis* and *marungensis* separate.

The rest of the population consists of birds intermediate in various degrees between these four subspecies but divisible at the Limpopo into two populations, on average size. If we divide the males into those with wings of 105 mm. and over and those with wings of 104 mm. or less, than 20 out of 29 (69%) of the birds from south of the Limpopo fall into the former class and 78 out of 101 (77%) of those from north of that river into the latter. Treating the females

similarly but drawing the line between 98 and 99 mm., then 23 out of 27 (85%) from south of the Limpopo fall into the large group and 55 out of 70 (78%) from north of that river into the small one. The combined total separable in size alone is 176 out of 227 (78%). If it is considered that this is sufficient to warrant nomenclatorial recognition, then the birds north of the Limpopo must be called *A. v. chobiensis* (Roberts). Considerable differences exist as to the exact meaning of the 'seventy-five per cent' rule (Amadon, 1949), but in view of the comments of Mr. A. N. Rowan in the Appendix, I propose to revive *chobiensis* for the birds north of the Limpopo.

Two possible explanations of the curious distribution pattern exhibited by the races of this species may be advanced: (i) A uniform population is in the process of differentiating into geographical subspecies; (ii) the species is in the course of extending, or has recently extended, its range, bringing into contact discrete populations previously isolated. The latter seems to fit the facts better, and also seems inherently the more probable. White (1948) points out that, although *A. vaalensis* and *A. leucophrys* frequently occur on the same ground, yet on the whole *vaalensis* prefers drier and *leucophrys* damper conditions. During the last pluvial (or hypothermal) period, the areas suitable for *vaalensis* would have been markedly more restricted than they are today; and I suggest that the four subspecies, *daviesi*, *clanceyi*, *exasperatus* and *neumanni*, were differentiated at that time. With the increasing desiccation since then, the species has expanded its range and a 'hybrid swarm' has come to occupy most of the area, including, probably, some of the original ranges of the four distinct subspecies, and has begun to 'swamp' their distinctiveness. The '*neumanni*' specimen from Darwendale has already been mentioned; and a January female from 3 m. south of Nata, with a wing of 102 mm., 6 mm. longer than the wing of any other female and 4 mm. longer than that of any male from within the range of *exasperatus*, is another example: though in view of the nomadic habits of *Anthus* spp. in the off-season, the possibility that these are stragglers cannot be excluded, even if the date renders it unlikely in the second case.

#### TAXONOMIC LIST

Taxonomically, six subspecies may be recognized.

1. *Anthus vaalensis vaalensis* Shelley

*Anthus vaalensis* Shelley, 1900, 311—Newcastle, Natal.

Plumage, size and degree of sexual dimorphism intermediate between the other races. Greyish brown above, unstreaked; buff below, usually with some dark flecking on the breast, but never very much.

*Range*: South Africa from the Little Karoo and inland eastern Cape to the Transvaal and southern Bechuanaland, except those areas occupied by the next two races.

*Measurements*: 29 ♂s; wing 97–110 mm., av. 104.9 mm.; tail 69–80 mm., av. 74.4 mm.; culmen 17–21 mm., av. 19.5 mm.; tarsus 24–30 mm., av. 26.9 mm.; hind-claw 8–12 mm., av. 9.5 mm.

22 ♀s; wing 94–105 mm., av. 100.1 mm.; tail 64–76 mm., av. 70.8 mm.; culmen 17–20 mm., av. 18.7 mm.; tarsus 25–28 mm., av. 26.7 mm.; hind-claw 8–11 mm., av. 9.3 mm.

*Material examined*

Cape Province: South African Museum 3 (Klaarstroom, Kimberley, Molopo R.); Durban Museum 6 (Uniondale, Riverton, Griquatown-Niekerkshoop); Albany Museum 4 (Grahamstown, Zuurburg, Kimberley); National Museum, Bulawayo 3 (Riverton, Langley, Kuruman); British Museum 1 ('Cape of Good Hope'); total, 17.

Natal: British Museum 1 (Ingangani R.); Durban Museum 2 (Blood R., Utrecht); total, 3.

Transvaal: British Museum 3 (Rustenburg, Lydenburg, Potchefstroom); Durban Museum 8 (Piet Retief, 10 m. E. of Wakkerstroom); Transvaal Museum 15 (Hammanskraal, Pretoria, Groot Spelonken, Bloemhof, Wolmaransstad, Barberton, Carolina, Warmbaths); Albany Museum 1 (Pietersburg); South African Museum 1 ('Transvaal'); total, 29.

Swaziland: Transvaal Museum 1 (Ndhlovudwalili); total, 1.

Bechuanaland: National Museum, Bulawayo 7 (23 and 25 m. S. of Letlaking, Lephepe-Dabeete, 41 m. N.W. of Molepole, Lotlelekane Wells); total, 7.

2. *Anthus vaalensis daviesi* Roberts

*Anthus daviesi* Roberts, 1914, 172—Matatiele.

Larger than *vaalensis* and with less sexual dimorphism of size.

*Range*: The higher parts of the Cape Province, from Matatiele to Nieuwoudtville and the Cold Bokkeveld, north to Philipstown and Colesberg. Occasional birds from as far north as Ngoma, in Northern Rhodesia, are inseparable.

*Measurements*: 6 ♂s; wing 108–113 mm., av. 112.0 mm.; tail 70–83 mm., av. 75.3 mm.; culmen 18–20 mm., av. 19.5 mm.; tarsus 23–30 mm., av. 27.6 mm.; hind-claw 9–10 mm., av. 9.6 mm.

1 ♀; wing 105 mm.; tail 71 mm.; culmen 20 mm.; tarsus 26 mm.; hind-claw 11 mm.

*Material examined*: South African Museum 4 (Nieuwoudtville, Cold Bokkeveld, Hanover, Glen Grey); British Museum 1 (Deelfontein); Transvaal Museum 1 (Matatiele (type, *daviesi*)); Albany Museum 1 (Colesberg); Durban Museum 1 (Steynsburg); total, 8.

3. *Anthus vaalensis clanceyi* subsp. nov.

Decidedly greyer than *vaalensis* or *daviesi*; intermediate in size; virtually no sexual dimorphism of size.

*Type:* Ad ♂, in Durban Museum: 'Glen Lyon', Glen, Modder River, Bloemfontein; collected by Durban Museum personnel, 8 June, 1960.

I name this subspecies after Mr. P. A. Clancey, who first drew my attention to it.

*Range:* The Central Orange Free State, from Bloemfontein to (?) Vredefort Road.\*

*Measurements:* 8 ♂s; wing 103–109 mm., av. 105.7 mm.; tail 72–79 mm., av. 74.7 mm.; culmen 18–19 mm., av. 18.5 mm.; tarsus 25–30 mm., av. 27.2 mm.; hind-claw 8–10 mm., av. 9.4 mm.

5 ♀s; wing 102–111 mm., av. 106.8 mm.; tail 70–83 mm., av. 74.4 mm.; culmen 18–19 mm., av. 18.4 mm.; tarsus 25–28 mm., av. 26.4 mm.; hind-claw 9–10 mm., av. 9.4 mm.

*Material examined:* Durban Museum 6 (Glen (type, *clanceyi*)); British Museum 3 (Vredefort Road); Albany Museum 2 (Vredefort Road, Bloemfontein); East London Museum 2 (Glen); total, 13.

#### 4. *Anthus vaalensis exasperatus* subsp. nov.

Smaller than *vaalensis* or any other race (w. normally less than 100 mm.); little sexual dimorphism in size (w. ♀, 99% of ♂).

*Type:* Ad ♂, in National Museum of Southern Rhodesia, Bulawayo, No. 29147, 3 m. S. of Nata, Bechuanaland Protectorate; collected 28 January, 1957, collector's number M.118.

*Range:* North-eastern Bechuanaland, from the Nata River to Francistown. Occasional males from Matabeleland and Northern Rhodesia are inseparable; and females are only distinguishable in series.

*Measurements:* 4 ♂s; wing 91–98 mm., av. 95.0 mm.; tail 64–69 mm., av. 67.0 mm.; culmen 18 mm., av. 18.0 mm.; tarsus 25–29 mm., av. 26.7 mm.; hind-claw 10 mm., av. 10.0 mm.

7 ♀s; wing 91–102 mm., av. 94.4 mm.; tail 60–71 mm., av. 67.9 mm.; culmen 17–19 mm., av. 18.1 mm.; tarsus 24–28 mm., av. 26.7 mm.; hind-claw 8–11 mm., av. 9.2 mm.

Note that females of this race are less obviously smaller than those of neighbouring populations (S.W.A., w. av. 94.7 mm.; Caprivi Strip, w. av. 95 mm.) than are the males, in correlation with the lesser sexual dimorphism of size shown by this race.

*Material examined:* National Museum, Bulawayo 12 (Mache, Nata (type, *exasperatus*), 4 m. S. of Francistown, Makarikari); total, 12.

#### 5. *Anthus vaalensis chobiensis* (Roberts)

*Meganthus vaalensis chobiensis* Roberts, 1932, 29—Kabulabula.

*Anthus leucophrys marungensis* Chapin, 1937, 342—Kaschi, Marungu, Belgian Congo.

*Anthus vaalensis muhingae* White, 1944, 6—Muhinga plain, Kasendoge, Katanga.

\* Since the above was written, Mr. Clancey has found specimens of this race in Griqualand West.



Similar to *A. v. vaalensis* but smaller; larger than *A. v. exasperatus*, especially in the males.

*Range*: From the Limpopo to western Nyasaland, Northern Province of Northern Rhodesia, Katanga and eastern Angola, except the north-eastern corner of Bechuanaland.

*Measurements*: 99 ♂s; wing 90–109 mm., av. 101.9 mm.; tail 60–79 mm., av. 72.0 mm.; culmen 15–22 mm., av. 18.9 mm.; tarsus 21–29 mm., av. 24.2 mm.; hind-claw 7–12 mm., av. 9.1 mm.

78 ♀s; wing 90–105 mm., av. 96.4 mm.; tail 60–78 mm., av. 69.4 mm.; culmen 16–21 mm., av. 18.4 mm.; tarsus 21–30 mm., av. 25.7 mm.; hind-claw 7–11 mm., av. 9.1 mm.

*Material examined*

Southern Rhodesia: Durban Museum 1 (Tjolotjo); National Museum, Bulawayo 104 (Gazuma Pan, Wankie Game Reserve, Kana R., Dorset Siding, Hopefontain, Nyamandhlovu, Copleston, Tjolotjo, Lupane, Bulawayo, Shangani R., Matopos, Bembezi, Inseze, Limpopo R., Khami, Sebungwe, Umvuma, Darwendale, Headlands, Salisbury, Rusape, Inyanga, Sabi-Lundi confluence, Hunyani R., Selukwe); Albany Museum 2 (Matopos); total, 107.

Northern Rhodesia: South African Museum 2 (Balovale, Lusaka); National Museum, Bulawayo 33 (Ngoma, Mazabuka, Choma, Lochinvar, Chuunga, Chilanga, Lusaka, Lukanga Swamp, Luanshya, Ntemwa-Lufupa confluence, Moshi-Lufupa confluence, Mweru Marsh, Mpika, Mwinilunga, Kasanga, Mporokoso, Kasusu, 8 m. N. of Nangweshi, Matabele Plain, Chiolola, Chunga Pools, Luete, Senenga); total, 35.

Caprivi Strip: Transvaal Museum 3 (Kabulabula (type, *chobiensis*), Kabuta); total, 3.

6. *Anthus vaalensis neumanni* Meinertzhagen

*Anthus leucophrys neumanni* Meinertzhagen, 1920, 23—Ambaca, Angola.

Decidedly redder than any other race.

*Range*: South West Africa and western Angola. Some specimens from eastern Angola, the Rhodesias and Nyasaland are indistinguishable from this form.

*Measurements* (S.W.A. birds only); 3 ♂s; wing 101–103 mm., av. 102.0 mm.; tail 73–76 mm., av. 74.7 mm.; culmen 17–18 mm., av. 17.7 mm.; tarsus 24–26 mm., av. 25.0 mm.; hind-claw 9–12 mm., av. 10.3 mm. (Hall, 1959, gives w. 93–105 for Angola birds, and White, 1948, 95–106 mm. for S.W.A. birds.)

3 ♀s; wing 92–98 mm., av. 94.7 mm.; tail 63–73 mm., av. 67.7 mm.; culmen 17–18 mm., av. 17.7 mm.; tarsus 27–28 mm., av. 27.7 mm.; hind-claw 9–12 mm., av. 10.3 mm. (Hall gives w. 89–102 mm. for Angola birds and White 94–99 mm. for S.W.A. birds.)

*Material examined:* Durban Museum 4 (Omaruru); British Museum 2 (Kamanjab, Franzfontein); total, 6.

#### SUMMARY

The forms of *Anthus vaalensis* are discussed, and six subspecies: *vaalensis* Shelley, *daviesi* Roberts, *clanceyi* subsp. nov., *exasperatus* subsp. nov., *chobiensis* Roberts, and *neumannii* Meinertzhagen, are recognized. A statistical analysis is made of the measurements of the specimens.

#### ACKNOWLEDGEMENTS

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